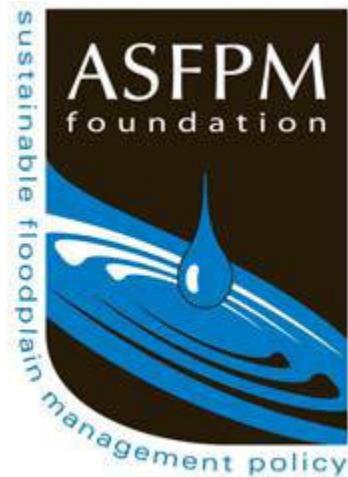




FLOODPLAIN MANAGEMENT 2050

2ND ASSEMBLY OF THE GILBERT F. WHITE NATIONAL FLOOD
POLICY FORUM



Committee on Levee Safety
October 9, 2008
Landsdowne, VA

Sam Riley Medlock, CFM, JD
ASFPM Policy & Partnerships Program Manager



Association of State Floodplain Managers

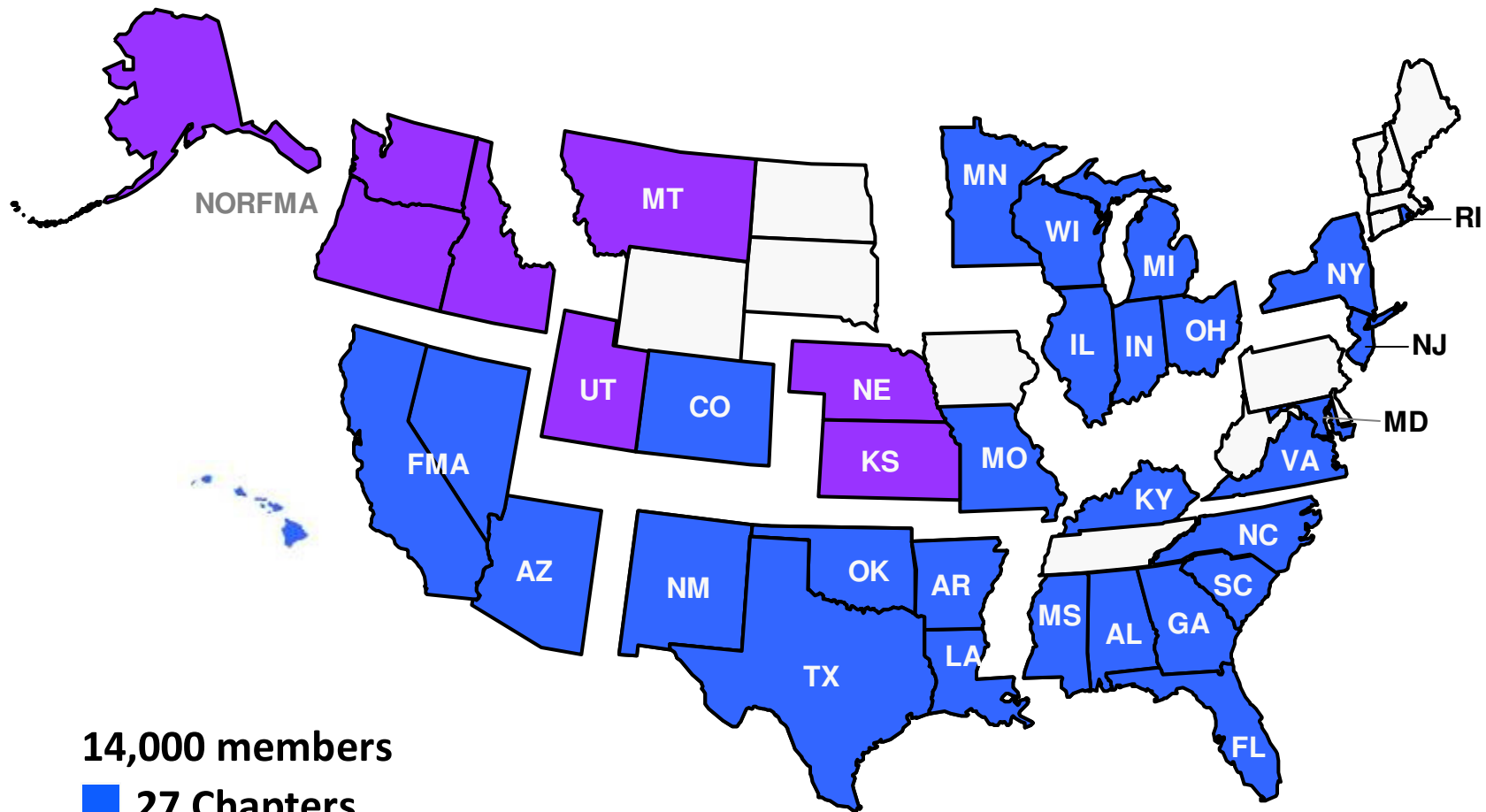


The mission of ASFPM is to promote education, policies, and activities that mitigate current and future losses, costs, and human suffering caused by flooding, and to protect the natural and beneficial functions of floodplains - all without causing adverse impacts.



www.floods.org

Association of State Floodplain Managers Chapters & Other State FPM Associations



14,000 members

■ 27 Chapters

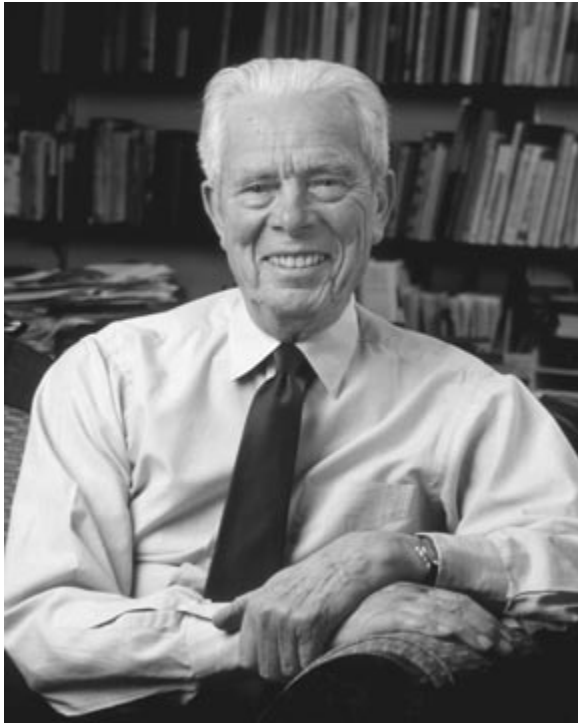
■ State Associations & Pending Chapters

ASFPM Foundation

- **Extension of ASFPM**
- **Dedicated to raising funds and supporting education and research for flood loss reduction**
- **Example Efforts**
 - Flood Forums
 - Publications
 - CFM Seed Funding
 - NAI Initiatives

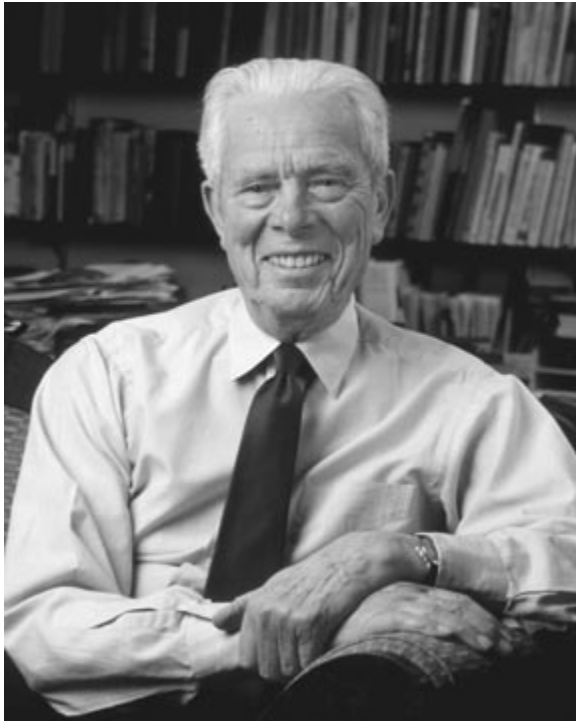


The Gilbert F. White Flood Policy Forum



- **ASFPM Foundation Signature Event**
- **Periodic gathering of experts**
- **National discussion of important floodplain management issues**
- **Named for Gilbert F. White, regarded as the most influential floodplain management policy expert of the 20th century**

The Gilbert F. White Flood Policy Forum



HUMAN ADJUSTMENT TO FLOODS A GEOGRAPHICAL APPROACH TO THE FLOOD PROBLEM IN THE UNITED STATES

A DISSERTATION SUBMITTED TO THE FACULTY
OF THE DIVISION OF THE PHYSICAL SCIENCES
IN CANDIDACY FOR THE DEGREE OF DOCTOR
OF PHILOSOPHY

DEPARTMENT OF GEOGRAPHY
JUNE, 1942

Research Paper No. 29

By
GILBERT FOWLER WHITE

FLOOD PLAIN STUDIES FILE

CHICAGO, ILLINOIS
1945

Human Adjustments to Floods

White described eight adjustments to flooding

1. Elevation
2. Flood Abatement (watershed mgt)
3. Flood Protection (levees, channels, etc)
4. Emergency Measures
5. Structural Alterations (floodproofing, codes)
6. Land Use (zoning)
7. Relief (public or private)
8. Insurance (indemnification)

Forum Method- Background Papers



- **Participants wrote over 40 papers prior to Forum**
 - **Intro- Human Adjustments to Floods 2050**
 - **Flood Risk 2050**
 - **Land Use**
 - **Natural Resources**
 - **Flood Insurance and Economic Implications**
 - **Delineating/Communicating Flood Risk**
 - **Elevation, Standards, Flood Control**
 - **Vulnerability Reduction**
 - **Improvements to the Mix of Adjustments**
 - **Environmental Factors in 2050**
- **Download at www.floods.org**

Forum Assembly

- 92 Participants
- Government
- Academia
- Private Sector
- Floodplain
- Insurance
- Banking
- Transportation
- Environmental



Forum Method- Four Introductory Speakers



- **Human Factors in 2050: Population Trends, Growth, and Urbanization**
 - Dr. Arthur “Chris” Nelson- Virginia Tech
- **Environmental Factors and Natural Resources in 2050: Climate Change, Ecosystem Degradation, Land Use**
 - Bill Hooke- American Meteorological Society
- **Government and other Factors in 2050: Devolution Upwards and Downwards**
 - G. Tracy Mehan III- The Cadmus Group
- **Scenario-based Planning to Guide Future Adjustments: The Foresight Flood and Coastal Defence Project of the United Kingdom**
 - Colin Thorne, University of Nottingham

Method - Group Evaluation of Adjustments



1. What Challenges to FPM 2050 ?
2. What Adjustments will be used 2050?
3. What Shifts in Policy and Programs 2050?
4. An Action Plan for 2050

1. *Elevation*
2. *Flood Abatement (watershed mgt)*
3. *Flood Protection (levees, channels, etc)*
4. *Emergency Measures*
5. *Structural Alterations (floodproofing, codes)*
6. *Land Use (zoning)*
7. *Relief (public or private)*
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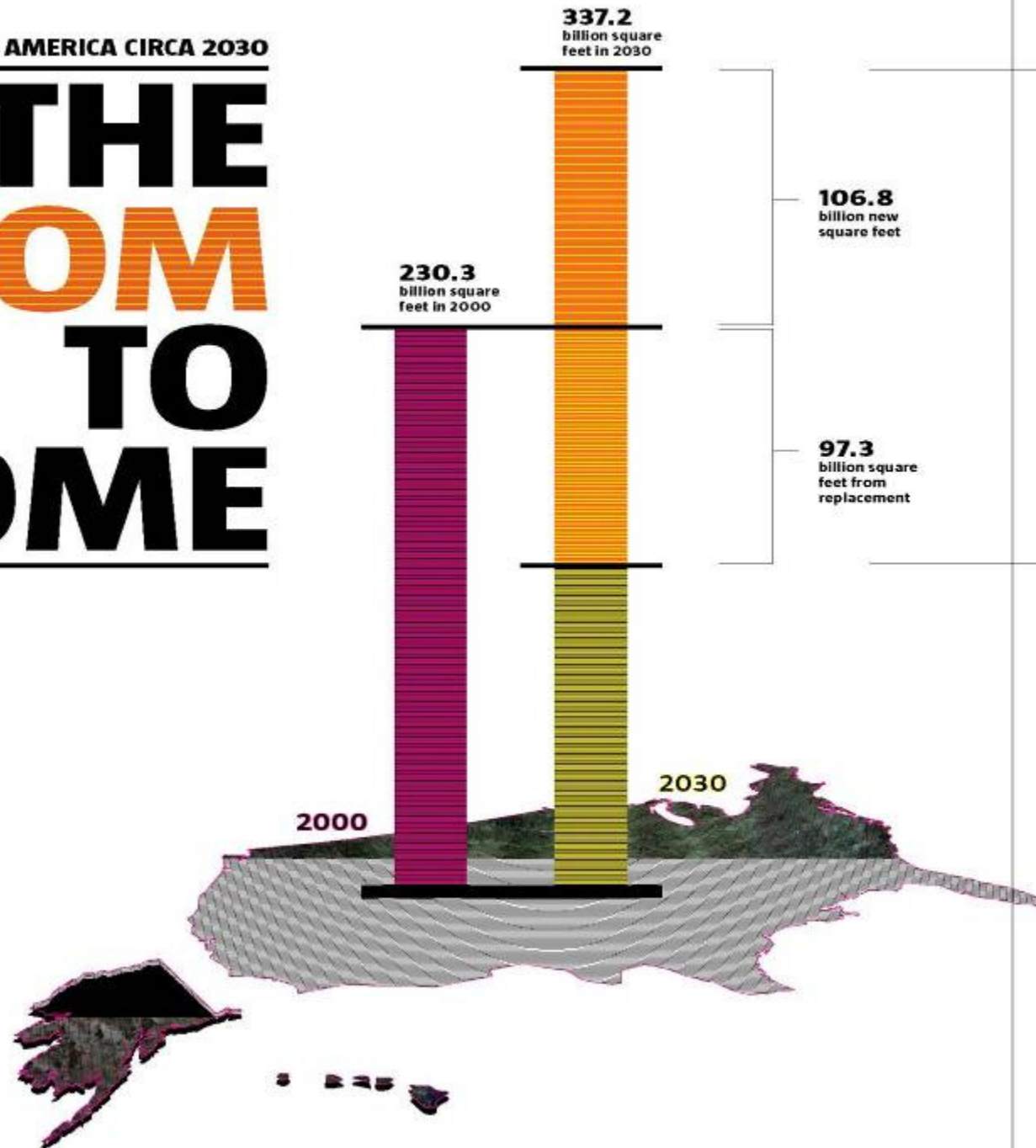
Part I -The Drivers of Change

Demographic Drivers

- More People (*population increase of 80 to 100 million in U.S. by 2050*)
- A Pattern of Movement to South and Southwest and New Mega Urban Zones
- A Different Character
 - Two class society
 - New cultures
 - Changing expectations
 - More retired as % of population
- Opportunities
 - Development-40% of all building will be new

AMERICA CIRCA 2030

THE BOOM TO COME



Life-Span of Building Space



Governance Drivers

- Devolution to State/Local/Private Levels
- Existing Structure, Laws and Entities Changing
- Changing Relationship between People and their Government
- People expect governments at all levels to do more, yet they avoid personal responsibility



Governance Drivers

- Governments have more to do, with less money
- “The federal budget of the future could be almost entirely consumed by entitlements and payment on the national debt...The planet is awash in private capital, but governments are fiscally challenged”

— G. Tracy Mehan III, *The Cadmus Group*



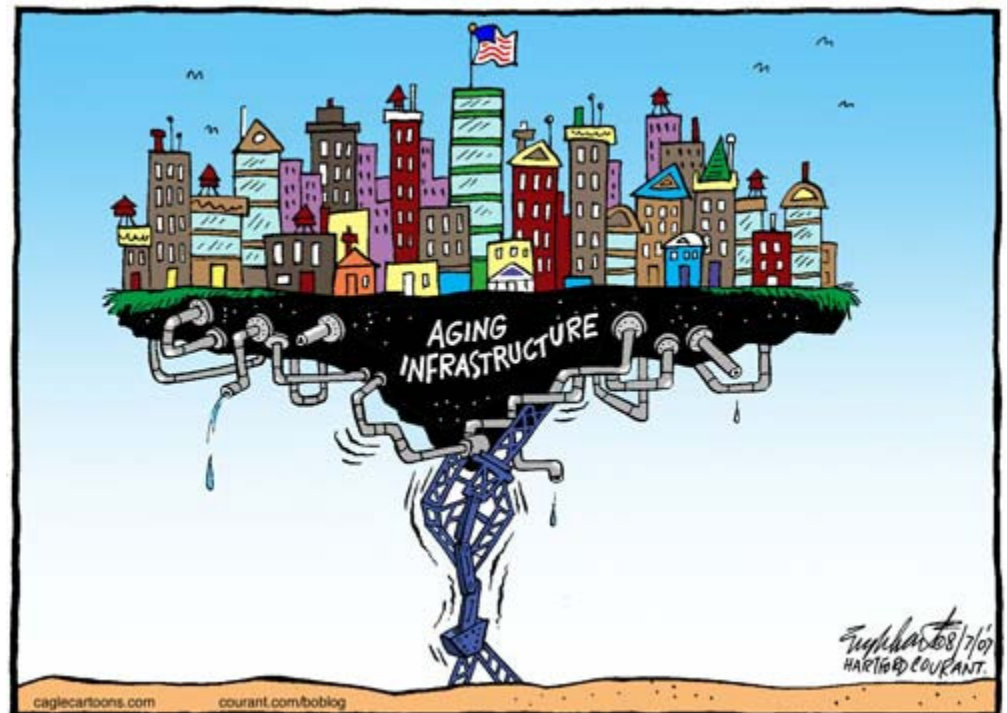
Environmental, Economic, Technology Drivers



- Natural Resources/Environmental Drivers
 - Loss of natural protective barriers
 - Water development in the past has occurred by trading off natural resources/environment-- tipping balance against environmental equilibrium
 - Climate change
- Economic & Technological Drivers
 - Global economy
 - Technology/information overload

Added factors not in play 50 years ago

- Aging and Failing Infrastructure
- Recognition of the Need to Save Open Space
- Interdependencies (e.g. on-time inventories)
- Expectation of Services from Government
- Pace of Change
- Climate Change



Where Will We Be In 2050 If Business-As-Usual Prevails?

- **Forum concluded there is strong potential in the decades between now and 2050**
 - **Increased flood exposure due to increased population**
 - **More frequent catastrophic floods**
 - **Ecosystem degradation leading to widespread collapse**
 - **Quality of life will be diminished**



Where We Could Be In 2050 . . . A safe and stable future is within our grasp



- Land and water (floodplains, wetlands and coastal areas) are restored and provide dual safety/resource functionality
- The market favors sustainable development, so that floodprone construction rarely occurs.
- Development is designed and built for no adverse impact
 - flood levels, sedimentation, erosion, riparian or coastal habitat, other community-designated values.

Headlines We Would Like To See In 2050...

**Report: Estuaries Healthy
and Expanding**



**Great Flood of 2050
No Damage, No Deaths**



**Disaster Fund
Untapped for Third
Straight Year !!**



Additional Adjustment Factors



1. Room for rivers and oceans.

1. *Elevation*
2. *Flood Abatement (watershed mgt)*
3. *Flood Protection (levees, channels, etc)*
4. *Emergency Measures*
5. *Structural Alterations (floodproofing, codes)*
6. *Land Use (zoning)*
7. *Relief (public or private)*
8. *Insurance (indemnification)*

Additional Adjustment Factors



1. Room for rivers and oceans.
2. Personal responsibility

1. *Elevation*
2. *Flood Abatement (watershed mgt)*
3. *Flood Protection (levees, channels, etc)*
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Additional Adjustment Factors



1. Room for rivers and oceans.
2. Personal responsibility
3. Geographic interdependencies

1. *Elevation*
2. *Flood Abatement (watershed mgt)*
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4. *Emergency Measures*
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Additional Adjustment Factors



1. Room for rivers and oceans.
2. Personal responsibility
3. Geographic interdependencies
4. Awareness and education

1. *Elevation*
2. *Flood Abatement (watershed mgt)*
3. *Flood Protection (levees, channels, etc)*
4. *Emergency Measures*
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Part IV.—An Agenda for Action

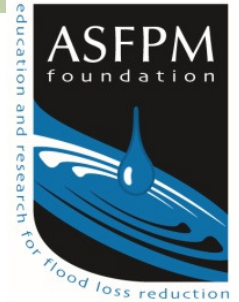
- Make room for rivers, oceans, associated land areas.
- Restore and enhance natural and beneficial functions of riverine and coastal areas.
- Generate a renaissance in water resources governance.
- Reverse perverse incentives in government programs.
- Identify and communicate risk at public and individual levels.
- Encourage personal and public responsibility.

Next Steps of Foundation



- Finalize Forum report (completed)
- Prepare policy oriented materials
- Prepare videos and other outreach materials

3rd GFW Forum proposed 2009-2010



- **Symposia 1- Defining Risk**
 - Spring 2009
- **Symposia 2- Mapping and Communicating Risk**
 - Fall 2009
- **Forum 2010 - Risk Management Policy**



Flood “Probability” is NOT Flood “Risk”

- Flood *risk* and flood *probability* are erroneously used interchangeably
- This, coupled with a need for legal clarity, has generally led to a zero/one mentality of flood risk
 - High risk (in the floodplain) OR
 - No risk (outside the floodplain)
- Its more complicated than that
 - Risk = probability x consequences
 - Risks can be high in situations where relatively low probabilities are offset by high consequences AND
 - Risk can be low where high probabilities are offset by low consequences

Communicating Risk

- **Probabilities – Fear and Uncertainty**
 - Largely decided by Mother Nature and understood by few
 - Plagued with assumptions and fraught with uncertainty – “Past performance no indication of future value”
 - Difficult to communicate risk through probabilities effectively
- **Consequences – Hope and Clarity**
 - Largely within our control
 - Risk reduction – decisions in advance
 - Risk transfer -- Insurance is available
 - Evacuation plans can be developed and exercised

Communicating Risk

■ Considerations

- **Seek to understand the probabilities and unknowns**
- **Accept the uncertainties and fact that science cannot predict the future**
- **Resist toiling over the probabilities - they are a trap, fodder for inaction**
- **Focus on controlling risk through action aimed at things within our control**





Floodplain Management 2050

The 2nd Gilbert F. White Flood Policy Forum



Planning Committee

Doug Plasencia
Diane Brown
Gerry Galloway
Larry Larson
Dale Lehman

Larry Olinger
Pam Pogue
George Riedel
Jackie Monday
Ed Thomas